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Application Timing is Critical With Auxin Herbicides

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With the introduction of new formulations of 2,4-D (Enlist One and Enlist Duo) and dicamba (XtendiMax, Engenia, and FeXapan) for use in Enlist and XtendFlex cotton, growers now have more options for controlling emerged broadleaf weeds, especially those that may be resistant to glyphosate. While these herbicides can provide excellent weed control, it is important to remember that the efficacy of these products (as well Liberty and other glufosinate formulations) is very dependent on weed size. Of particular concern are the *Amaranthus* weeds, Palmer amaranth and common waterhemp, which can easily grow more than an inch per day under prime growing conditions in the spring and summer. The labels of Enlist One and Enlist Duo recommend targeting weeds that are between 3 and 6 inches tall. For XtendiMax, FeXapan, and Engenia, the labels recommend applications be made to weeds less than 4 inches tall. While Liberty is not an auxinic herbicide, its effectiveness is also very much dependent on weed size and its label recommends treating weeds less than 3 inches tall. If weeds are allowed to grow beyond these sizes, they will be much more difficult (if not impossible) to control through chemical means alone.

In 2017, a series of experiments were conducted at Corpus Christi, TX to investigate the efficacy of 2,4-D and dicamba on Palmer amaranth of various sizes. Applications of 0.95 lb 2,4-D/A (equivalent to 4.75 pints of Enlist Duo, or 2.0 pints of Enlist One) and 0.5 lb/A dicamba (equivalent to 22 fl oz of XtendiMax or FeXapan, or 12.8 fl oz of Engenia) were made to weeds which were 4, 8, and 16 inches tall. In this case, these applications were made exactly 7 days apart, indicating that Palmer amaranth was doubling in height every week. Applications were made with TeeJet TTI nozzles at a total spray volume of 10 GPA (it is important to note that the revised labels of XtendiMax and FeXapan now recommend a minimum of 15 GPA). Weed control evaluations made 28 days after application revealed that 2,4-D provided 97% control of 4 inch tall Palmer amaranth, and control decreased to 87% and 78% when applied on 8 and 16 inch weeds, respectively (Figure 1). A similar trend was observed when using dicamba, where 98% control of 4 inch tall weeds was achieved, but control of 8 and 16 inch weeds decreased to 75% and 67%, respectively (Figure 2).

These results are consistent with field observations of several AgriLife Extension and Research faculty statewide, that large weeds are often much more difficult to control, and that timely application of any postemergence herbicide is critical for achieving acceptable levels of weed control. As can be seen from the aforementioned experiment, the delay of an application by just a few days can make the difference between excellent weed control and a control failure.

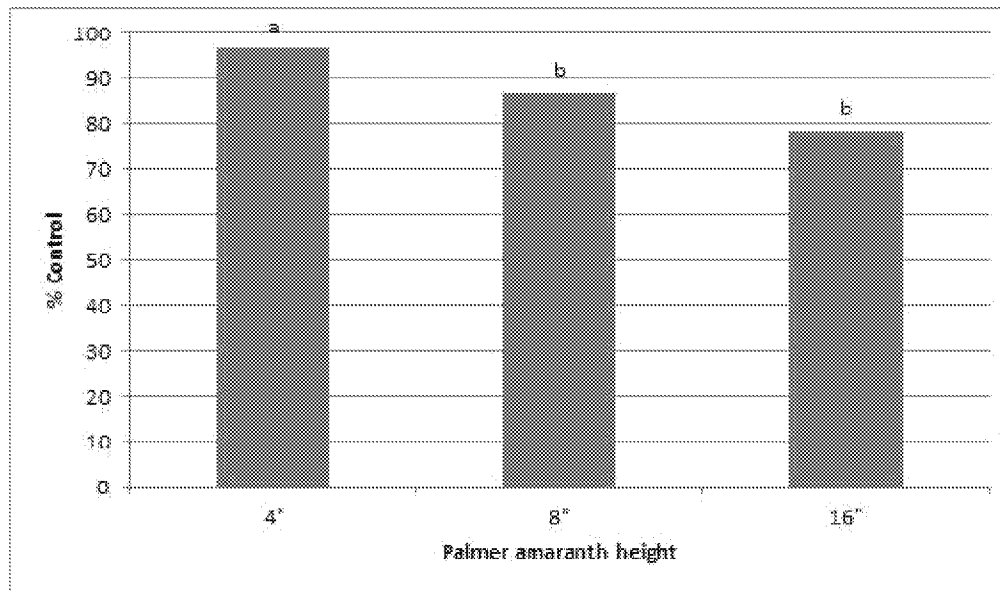


Figure 1. Control of Palmer amaranth with 0.95 lb/A 2, 4-D, 28 days after treatment.

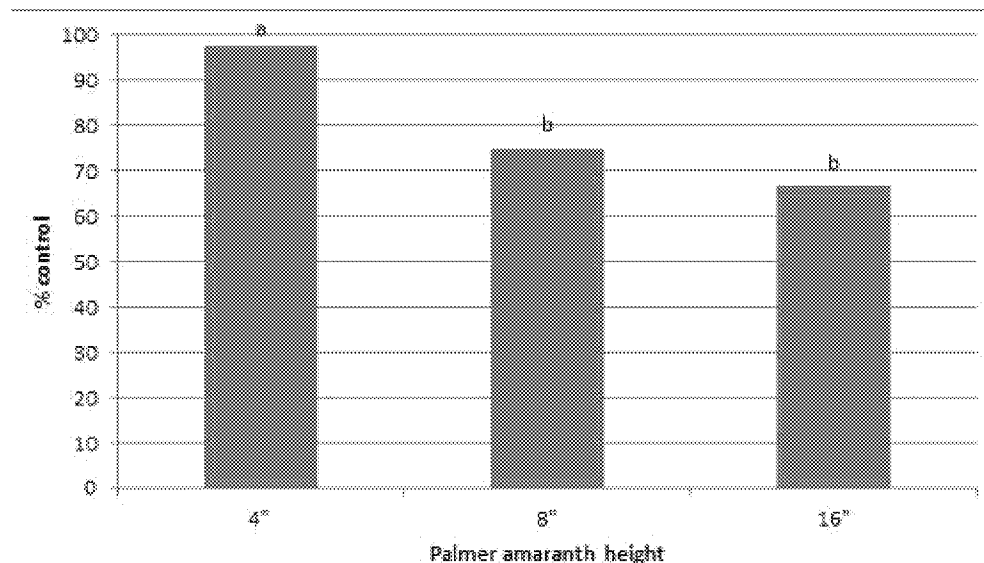
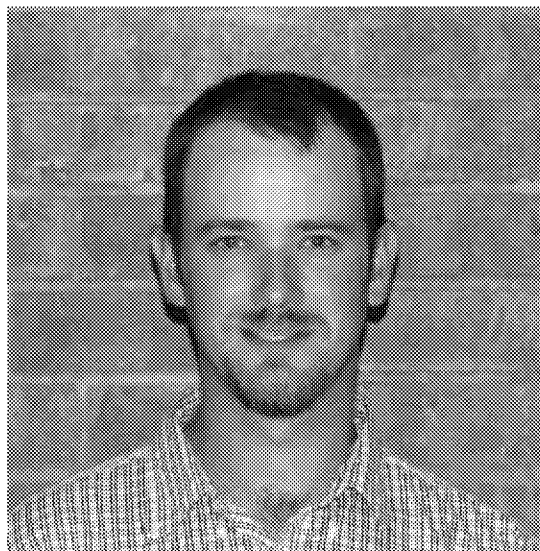


Figure 2. Control of Palmer amaranth with 0.5 lb/A dicamba, 28 days after treatment.



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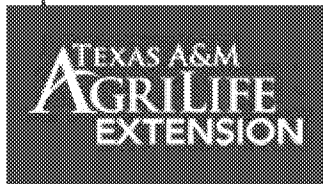
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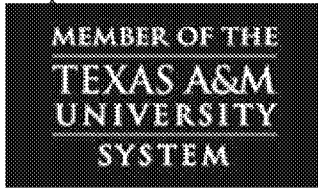
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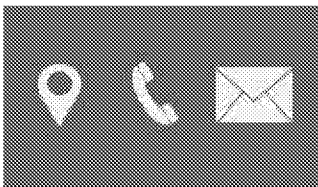
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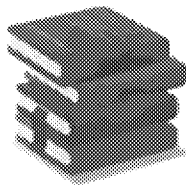
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